

**FAS – Office of Global Analysis (OGA)**  
**United States Department of Agriculture (USDA)**  
**International Operational Agriculture Monitoring Program**



Summary: November 14, 2007

1. Initial examination of high resolution Quickbird imagery acquired from Nov 1<sup>st</sup> – Nov 6<sup>th</sup>, 2007 and provided by the National Geospatial Intelligence Agency (NGA) reveals that field preparation continues in rainfed regions. Fields show signs of tillage, aggregation of field residue, and burning. The burning of the residue further indicates that fields have not been planted as of the last date of image acquisition<sup>1</sup> (FAO, 2002) (Figure 1).
2. AgroWatch crop analysis of Quickbird imagery on four sample areas of interest for Arbil, Dahuk, and As Sulaymaniyah provinces indicates that most non-irrigated managed fields are composed of 85% – 100% bare soil (i.e. no crops).
3. The wheat and barley season in irrigated areas has begun (Weekly PRT report, John Schnittker), but below normal precipitation in rainfed dependent areas maybe inhibiting this. High resolution imagery, in combination with AWiFS IRS P6 imagery, reveals that areas with a high vegetation signature are irrigated and in close proximity to waterways (Figures 2 – 3).
4. Cumulative precipitation is below normal for all provinces. Northern provinces in the wheat belt, mainly Ninawa and Dahuk, have shown a slight increase in cumulative precipitation and surface soil moisture. Other provinces that are predominantly rainfed winter wheat areas are experiencing greater than 27 consecutive dry days. Weekly JAWF meeting forecasts trace precipitation in north central Iraq with well below normal precipitation in the northern rainfed regions.

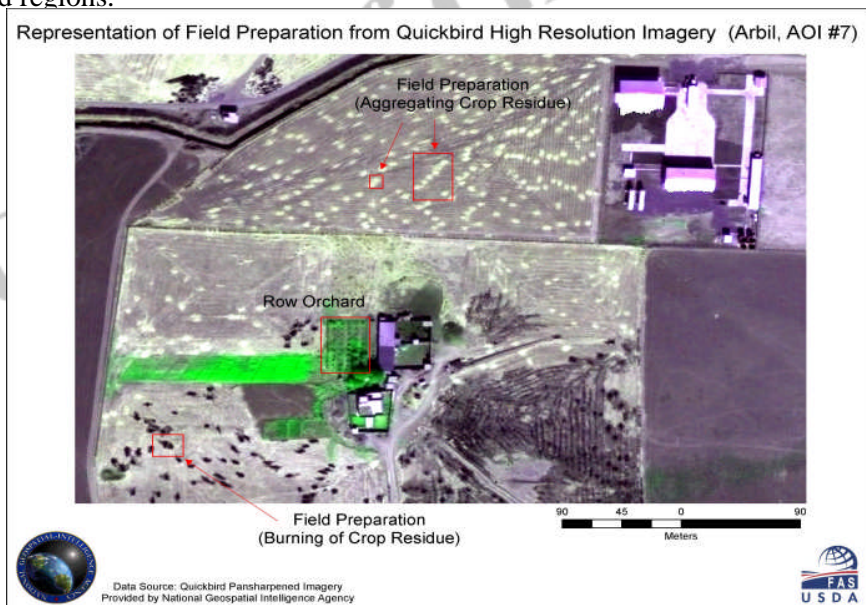


Figure 1: Quickbird imagery revealing row orchards and building structures, aggregation of field residue,

<sup>1</sup> In most of Asia, the previous crop residues are normally removed for livestock fodder and/or for use as cooking fuel. In some cases, they are left and incorporated during the tillage operations or may be partially returned to the field and incorporated via compost or farmyard manure. However, burning of crop residues is becoming more common as more farmers begin to use combine harvesters, especially when crop turnaround time is short and the time required to incorporate the normally high levels of residues can lead to major next crop planting delays.

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 Mechanical tillage, and burning.

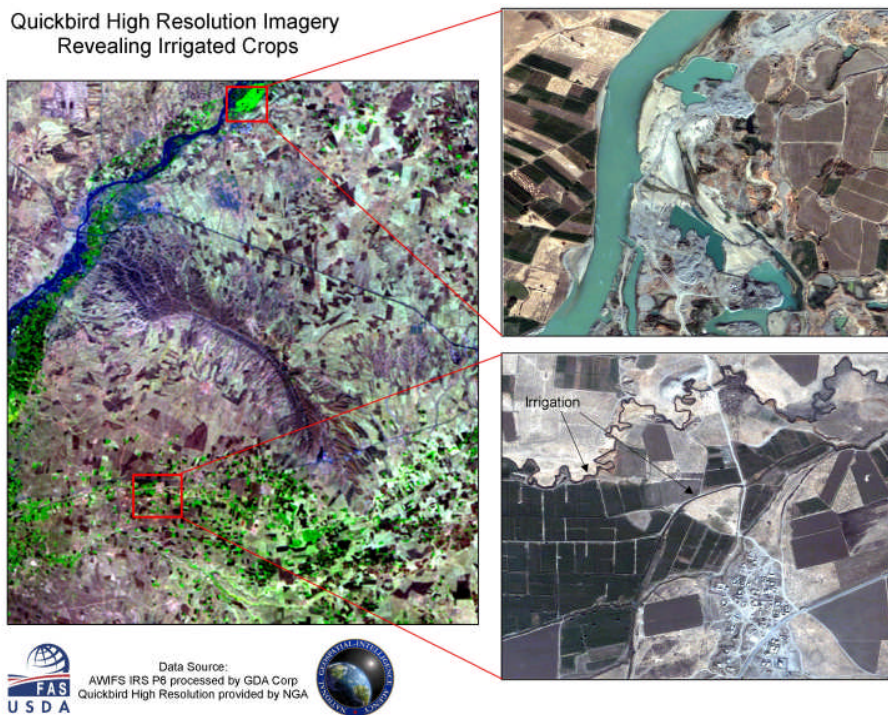


Figure 2: Areas indicating strong green vegetation signatures using moderate resolution AWiFS IRS P-6 data are confirmed by high resolution Quickbird to be irrigated crops.

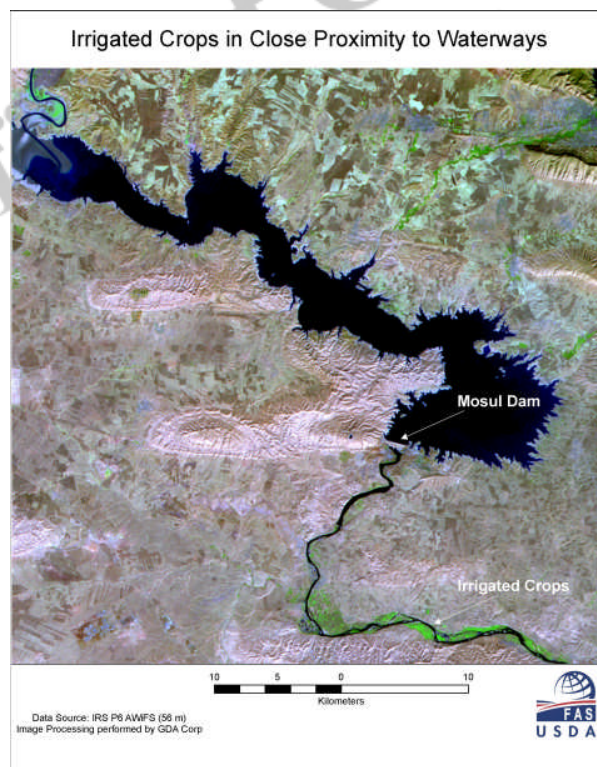
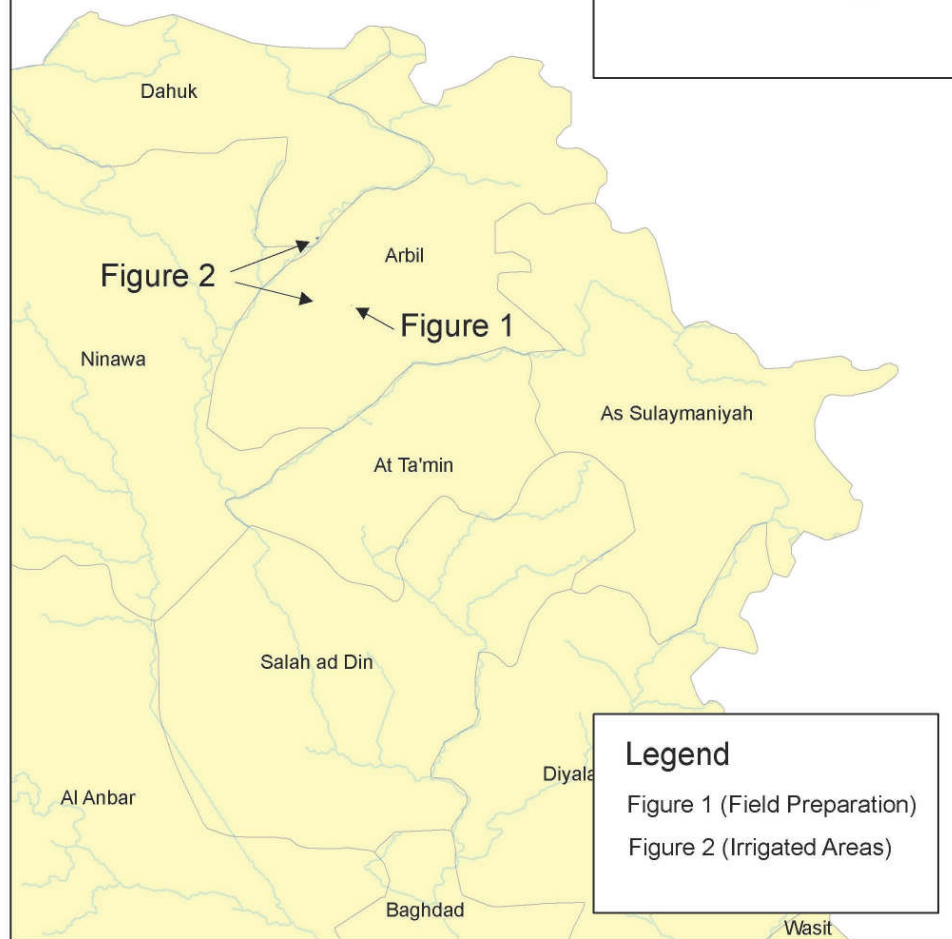


Figure 3: AWiFS P6 data showing crop areas in close proximity to waterways (Mosul, Iraq).

## Geographic Representation of High Resolution Images used in Figures 1 & 2



### Legend

Figure 1 (Field Preparation)

Figure 2 (Irrigated Areas)